

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ  
РОССИЙСКОЙ ФЕДЕРАЦИИ  
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Институт информатики и телекоммуникаций

Информационные системы и технологии в управлении, 09.03.02

Лабораторная работа №4

По дисциплине: Инструментальные средства информационных  
систем

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Группа: БИСЗ 20-01

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## Задание 1

show databases;

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| my_db      |
| mysql      |
| performance_schema |
| sys        |
+-----+
5 rows in set (0.00 sec)
```

show tables;

```
mysql> show tables;
+-----+
| Tables_in_my_db |
+-----+
| discussion_group |
| user             |
| user_group_post  |
| user_private_message |
| users_to_discussion_groups |
+-----+
5 rows in set (0.00 sec)
```

desc user\_private\_message;

```
mysql> desc user_private_message;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default          | Extra          |
+-----+-----+-----+-----+-----+-----+
| message_id | int unsigned  | NO   | PRI | NULL             | auto_increment |
| user_from_id | int unsigned  | YES  | MUL | NULL             |                |
| user_to_id   | int unsigned  | YES  | MUL | NULL             |                |
| send_time   | timestamp     | NO   | MUL | CURRENT_TIMESTAMP | DEFAULT_GENERATED |
| is_read     | tinyint(1)    | NO   |     | NULL             |                |
| read_time   | timestamp     | YES  |     | NULL             |                |
| message_text | text          | NO   |     | NULL             |                |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

## Задание 2

select Name, approve\_required

-> from discussion\_group

-> where approve\_required = true;

```
mysql> select Name, approve_required
-> from discussion_group
-> where approve_required = true;
```

Name	approve_required
7176 citystate _MACOSX	1
6108 montroy printrecipe blog_	1
Datenpflege newtip	1
6b tt	1
editors-pick dirs resource_center xfguestbook	1
stepup sendpm	1
cmn qnotify programmes provisional	1
graphics2 torremar	1
cmon forumcp wellington Delphi	1
5727 produs_prieten	1
video2 cookie petra	1
previa file-to-disallow amod_files	1

```
12 rows in set (0.00 sec)
```

### Задание 3

```
mysql> select message_id ID, read_time 'READ', send_time 'SEND',
message_text 'TEXT'
-> from user_private_message
-> where send_time between '2020-11-01' and '2020-11-30' and
message_text like 'A%' and send_time >= read_time - interval 10 day;
```

```
mysql> select message_id ID, read_time 'READ', send_time 'SEND', message_text 'TEXT'
-> from user_private_message
-> where send_time between '2020-11-01' and '2020-11-30' and message_text like 'A%' and send_time >= read_time - interval 10 day;
```

ID	READ	SEND	TEXT
6521460	2020-11-11 00:39:04	2020-11-02 00:39:04	assets_c AdClick ddp cruceros dlarticle2 d7 ordermotion operation accesorios IMP jubilee
6521318	2020-11-12 00:39:04	2020-11-04 00:39:04	admindemo realtime pink 7395 resumelist 6808 prepaidsim index-dev Bin 3816 tmp_media eweb store4 dla

```
2 rows in set (0.01 sec)
```

### Задание 4

```
mysql> select count(approved) "approved_cnt", min(joined_time)
"oldest_join", max(approved_time) "recent_approve"
-> from users_to_discussion_groups;
```

```
mysql> select count(approved) "approved_cnt", min(joined_time) "oldest_join", max(approved_time) "recent_approve"
-> from users_to_discussion_groups;
```

approved_cnt	oldest_join	recent_approve
100	2018-06-06 00:39:04	2021-02-02 00:39:04

```
1 row in set (0.04 sec)
```

### Задание 5

```
mysql> select user_id, registration_time
-> from user
-> order by 2 desc limit 20;
```

```
mysql> select user_id, registration_time
-> from user
-> order by 2 desc limit 20;
```

user_id	registration_time
8296	2021-02-02 00:39:04
8427	2021-01-30 00:39:04
7989	2021-01-27 00:39:04
8281	2021-01-21 00:39:04
7647	2021-01-12 00:39:04
7899	2021-01-11 00:39:04
7506	2021-01-11 00:39:04
8271	2021-01-07 00:39:04
7812	2021-01-06 00:39:04
7853	2021-01-02 00:39:04
8123	2021-01-01 00:39:04
8227	2020-12-18 00:39:04
8361	2020-12-16 00:39:04
7533	2020-12-09 00:39:04
7515	2020-12-07 00:39:04
7748	2020-11-26 00:39:04
7939	2020-11-22 00:39:04
7921	2020-11-22 00:39:04
8259	2020-11-09 00:39:04
8095	2020-10-25 00:39:04

```
20 rows in set (0.01 sec)
```

#### Задание 6

```
mysql> select registration_time TIME, "user" TableName
-> from user
-> union all
-> select creation_time TIME, "group" TableName
-> from discussion_group;
```

```
mysql> select registration_time TIME, "user" TableName
-> from user
-> union all
-> select creation_time TIME, "group" TableName
-> from discussion_group;
```

TIME	TableName
2018-05-21 00:39:04	user
2018-05-24 00:39:04	user
2018-06-01 00:39:04	user
2018-06-02 00:39:04	user
2018-06-07 00:39:04	user
2018-06-17 00:39:04	user
2018-06-18 00:39:04	user
2018-06-21 00:39:04	user
2018-06-24 00:39:04	user
2018-06-30 00:39:04	user
2018-07-01 00:39:04	user
2018-07-02 00:39:04	user
2018-07-03 00:39:04	user
2018-07-06 00:39:04	user
2018-07-15 00:39:04	user
2018-07-22 00:39:04	user
2018-07-28 00:39:04	user
2018-08-14 00:39:04	user
2018-08-18 00:39:04	user
2018-08-28 00:39:04	user
2018-09-03 00:39:04	user
2018-09-10 00:39:04	user
2018-09-26 00:39:04	user
2018-09-27 00:39:04	user
2018-10-10 00:39:04	user
2018-10-14 00:39:04	user
2018-10-19 00:39:04	user
2018-10-23 00:39:04	user
2018-10-26 00:39:04	user
2018-10-28 00:39:04	user
2018-11-01 00:39:04	user
2018-11-02 00:39:04	user
2018-11-06 00:39:04	user
2018-11-08 00:39:04	user
2018-11-09 00:39:04	user

```
mysql> with groups_with_approve as (select * from discussion_group where
approve_required = 1),
-> new_groups as (select *from groups_with_approve where creation_time
between '2020-01-01' and curdate())
-> select group_id from new_groups;
```

```
mysql> with groups_with_approve as (select * from discussion_group where approve_required = 1),
-> new_groups as (select *from groups_with_approve where creation_time between '2020-01-01' and curdate())
-> select group_id from new_groups;
+-----+
| group_id |
+-----+
| 570774 |
| 570864 |
| 570823 |
| 570848 |
+-----+
4 rows in set (0.02 sec)
```

### Задание 7

```
mysql> select user_from_id, count(1) as snt
-> from user_private_message
-> group by user_from_id;
```

```
mysql>
mysql> select user_from_id, count(1) as snt
-> from user_private_message
-> group by user_from_id;
+-----+-----+
| user_from_id | snt |
+-----+-----+
| 7490 | 5 |
| 7498 | 4 |
| 7500 | 3 |
| 7506 | 3 |
| 7515 | 4 |
| 7525 | 1 |
| 7533 | 1 |
| 7543 | 4 |
| 7545 | 1 |
| 7547 | 1 |
| 7552 | 2 |
| 7564 | 2 |
| 7573 | 2 |
| 7580 | 2 |
| 7583 | 2 |
| 7585 | 3 |
| 7598 | 3 |
| 7605 | 4 |
| 7606 | 1 |
| 7614 | 5 |
| 7616 | 2 |
| 7622 | 2 |
| 7629 | 3 |
| 7635 | 1 |
```

```
mysql> select admin_user_id from discussion_group union
-> select user_from_id from user_private_message;
```

```
mysql> select admin_user_id from discussion_group union
-> select user_from_id from user_private_message;
```

admin_user_id
7573
7606
7616
7675
7691
7748
7763
7818
7947
7960
7964
8042
8416
8475
8543
8561
8592
8599
8609
7490
7498
7500
8525
8533
8539
8546
8548
8554
8557
8571
8577
8586

```
179 rows in set (0.01 sec)
```

### Задание 8

```
mysql> select date(send_time), count(user_from_id) as message_count,
count(distinct user_from_id) as senders_count
-> from user_private_message
-> group by date(send_time) having count(user_from_id) = count(distinct
user_from_id);
```

```
mysql> select date(send_time), count(user_from_id) as message_count, count(distinct user_from_id) as senders_count
-> from user_private_message
-> group by date(send_time) having count(user_from_id) = count(distinct user_from_id);
```

date(send_time)	message_count	senders_count
2020-10-21	13	13
2020-10-22	24	24
2020-10-24	19	19
2020-10-27	13	13
2020-10-28	18	18
2020-11-03	25	25

```
6 rows in set (0.01 sec)
```

### Задание 9

```

C:\Users\79232\Desktop\4 Курс\Инструментальные средства информационных систем\Лабораторная работа 4>docker exec -it my-mongo mongo
MongoDB shell version: 5.0.23
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("73c2824f-26af-435a-94a0-7636e42eb0ee") }
MongoDB server version: 5.0.23
*****
Warning: the "mongo" shell has been superseded by "mongosh",
which delivers improved usability and compatibility. The "mongo" shell has been deprecated and will be removed in
an upcoming release.
For installation instructions, see
https://docs.mongodb.com/mongodb-shell/install/
*****
The server generated these startup warnings when booting:
  2024-01-18T12:44:16.202+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
  2024-01-18T12:44:55.447+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
  2024-01-18T12:44:55.473+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
  
```

- > show dbs;
- > use my\_db
- > show collections

```

> show dbs;
admin      0.000GB
config     0.000GB
local      0.000GB
my_db      0.000GB
> use my_db
switched to db my_db
> show collections
posts
users
>
  
```

## Задание 10

> db.posts.find({"author": /.example.ru.\*/, "score": {\$gt: 100}, "topics": "as"})

```

> db.posts.find({"author": /.example.ru.*/, "score": {$gt: 100}, "topics": "as"})
{ "_id" : ObjectId("65a91e10b6ee43b79b952f7d"), "author" : "lprudy@example.ru", "creation_date" : ISODate("2020-06-27T00:00:00Z"), "topics" : [ "as", "very", "a", "but" ], "score" : 242, "status" : "published", "message" : "us for over with rabbit and screamed to to l ife her sat and i to and be and and join don fell march said majesty found if ever and their stand to than natural doing dormouse alic e know size and back go twinkle alice went askance commotion caused in the she all found taking croquet dormouse but hearing the i as evidence i put the you" }
{ "_id" : ObjectId("65a91e10b6ee43b79b952f85"), "author" : "aalfred@example.ru", "creation_date" : ISODate("2021-02-03T00:00:00Z"), "topics" : [ "as", "pleasure", "hot" ], "score" : 4707, "status" : "published", "message" : "all find the a that alice therefore off yet same and and it all rather and said the said out leaves tell this nor chorus just nine blasts made s plate if to nothing her round no se to except interesting alice say become is hatter grinned this and with close that over come and that all as mushroom interrupted th en first time up the it wood what procession we moment pointing thought a round you" }
{ "_id" : ObjectId("65a91e10b6ee43b79b952fd2"), "author" : "sagnesse@example.ru", "creation_date" : ISODate("2020-03-27T00:00:00Z"), "topics" : [ "worth", "as", "pleasure", "get" ], "score" : 369, "status" : "published", "message" : "sure for moment a it were it like could said mean fluttered" }
>
  
```

## Задание 11

```

db.posts.insertMany([{"creation_date": new Date(),
... "author": "skbx@example.com", "topics": ["mongodb"]},
{"creation_date": new ISODate('2021-12-31T00:00:00Z'),
"author": "skbx@example.ru"}])
  
```

```

> db.posts.insertMany([{"creation_date": new Date(),
... "author": "skbx@example.com", "topics": ["mongodb"]}, {"creation_date": new ISODate('2021-12-31T00:00:00Z'),
"author": "skbx@example.ru"}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("65a92aaa74eaae3120b6f2ab"),
    ObjectId("65a92aaa74eaae3120b6f2ac")
  ]
}
>
  
```

db.posts.find({"author": /.skbx@example.ru.\*/})

```
> db.posts.find({"author": /.skbx@example.*/})
{ "_id" : ObjectId("65a92aaa74eaae3120b6f2ab"), "creation_date" : ISODate("2024-01-18T13:42:02.633Z"), "author" : "skbx@example.com",
  "topics" : [ "mongodb" ] }
{ "_id" : ObjectId("65a92aaa74eaae3120b6f2ac"), "creation_date" : ISODate("2021-12-31T00:00:00Z"), "author" : "skbx@example.ru" }
>
```

## Задание 12

```
db.users.aggregate( [ { $match : { 'visits' : { $gt: 300 } } } ,
... { $project: { karma: "$karma", first_name: { $substr: ["$first_name", 0, 1] }
} } ,
... { $group: { _id: { $substr: ["$first_name", 0, 1] }, sum: { $sum: "$karma" }
} } ] )
{ "_id" : "D", "sum" : -64 }
```

```
> db.users.aggregate( [ { $match : { 'visits' : { $gt: 300 } } } ,
... { $project: { karma: "$karma", first_name: { $substr: ["$first_name", 0, 1] } } } ,
... { $group: { _id: { $substr: ["$first_name", 0, 1] }, sum: { $sum: "$karma" } } } ] )
{ "_id" : "D", "sum" : -64 }
{ "_id" : "L", "sum" : 243 }
{ "_id" : "C", "sum" : 176 }
{ "_id" : "E", "sum" : 120 }
{ "_id" : "K", "sum" : 153 }
{ "_id" : "J", "sum" : 419 }
{ "_id" : "O", "sum" : 71 }
{ "_id" : "P", "sum" : 94 }
{ "_id" : "V", "sum" : -43 }
{ "_id" : "A", "sum" : -28 }
{ "_id" : "R", "sum" : 53 }
{ "_id" : "M", "sum" : 516 }
{ "_id" : "S", "sum" : 296 }
{ "_id" : "Z", "sum" : -82 }
{ "_id" : "T", "sum" : -68 }
{ "_id" : "G", "sum" : 199 }
{ "_id" : "H", "sum" : 79 }
{ "_id" : "B", "sum" : 323 }
>
```

## Задание 13

```
set index
expire index 120
ttl index
persist index
ttl index
```

```
127.0.0.1:6379> set index value
OK
127.0.0.1:6379> expire index 120
(integer) 1
127.0.0.1:6379> ttl index
(integer) 104
127.0.0.1:6379> persist index
(integer) 1
127.0.0.1:6379> ttl index
(integer) -1
127.0.0.1:6379>
```

## Задание 14



zadd rating 10 mysql 20 postgresql 30 mongodb 40 redis  
zincrby rating 15 mysql  
zpopmax rating  
zrem rating redis  
zrank rating mysql

```
(integer) 1
127.0.0.1:6379> zadd rating 10 mysql 20 postgresql 30 mongodb 40 redis
(integer) 4
127.0.0.1:6379> zincrby rating 15 mysql
"25"
127.0.0.1:6379> zpopmax rating
1) "redis"
2) "40"
127.0.0.1:6379> zrem rating redis
(integer) 0
127.0.0.1:6379> zrank rating mysql
(integer) 1
127.0.0.1:6379>
```

Задание 15

subscribe events42

publish events42 Hello:there

```
127.0.0.1:6379> subscribe events42
1) "subscribe"
2) "events42"
3) (integer) 1
1) "message"
2) "events42"
3) "Hello"
1) "message"
2) "events42"
3) "Hello there"
127.0.0.1:6379> publish events42 "Hello there"
(integer) 1
```